

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: Gerd Breiter et al.

Serial No.: 10/616,526

Filed: July 10, 2003

For: METHOD AND SYSTEM FOR ENHANCING STREAMING
OPERATION IN A DISTRIBUTED COMMUNICATION
SYSTEM

Group Art Unit: 2152

Confirmation No.: 1217

Examiner: Tauqir Hussain

APPEAL BRIEF IN SUPPORT OF APPEAL FROM
THE PRIMARY EXAMINER TO THE BOARD OF APPEALS

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Commissioner for Patents
P.O. Box 1450
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Sir:

This is an appeal of a Final Rejection under 35 U.S.C. §103(a) of claims 1, 3-5, 7, 9, and 11-15 of Application Serial No. 10/616,526, filed July 10th, 2003. This brief is submitted by the appellants pursuant to a Notice of Appeal filed August 5th, 2008, as required by 37 C.F.R. §1.192.

The appeal brief fee of \$510.00 is:

- Enclosed.
- Not required. (Fee paid in prior appeal.)
- Charged to Deposit Account No. 09-0465. A duplicate copy of this sheet is enclosed.

Serial No.: 10/616,526

IBM Docket No.: DE920020011US1

1. Real Party in Interest

The Real party in interest is International Business Machines, Inc., the assignee of the above identified application. The inventors assigned their interest as recorded on July 10th, 2003, on Reel 014279, Frame 0668.

2. Related Appeals and Interferences

There are no related appeals or interferences for the above-identified application.

3. Status of Claims

Claims 3-5, 7, 9, 14, and 15 are pending and stand finally rejected, and are on appeal herein. Claims 2, 6, 8, and 10 are canceled. An amendment canceling claims 11-13 is awaiting entry. The claims on appeal are set forth in the Appendix of Claims.

4. Status of Amendments

An amendment was filed after the final rejection mailed on June 9th, 2008, and is meant to comply with 37 C.F.R. 41.37, canceling claims 11-13. This amendment is filed herewith, and is awaiting entry.

5. Summary of Claimed Subject Matter

The invention herein relates to distributing and streaming of data, for accessing digital information, including audio, video, and business type information, at remotely stored locations and for communicating that information to a user's premise. Independent claim 1 recites a method for enhancing streaming operation in a distributed communication system providing communication links between a plurality of stream servers, a client machine requesting a particular media file, and a stream server selection unit. Independent claim 14 recites a device for enhancing streaming operation in a distributed communication system. Independent claim 15 recites a computer program product stored on a computer usable medium.

In accordance with claim 1, a method is claimed for enhancing streaming operation in a distributed communication system providing communication links between a plurality of stream servers, a client machine requesting a particular media file, and a stream server selection unit. [Spec. page 4, lines 2-5]. A list of stream servers is retrieved from an Universal Description, Discovery, and Integration (UDDI) directory service [Spec. page 4, line 5; Fig. 2, element 204; Spec. page 5, lines 8-10.]. The list of stream servers is evaluated [Spec. page 4, line 5] by retrieving and considering the stream server's operating parameters [Spec. page 4, lines 11-15; Spec. page 8 lines 13-14], retrieving and considering the format(s) in which the media file is presented [Spec. page 8 lines 14-15; Spec. page 9, lines 25-26], retrieving and considering preferences from the client [Spec. page 8 lines 21-22; Fig. 2 element 214], retrieving and considering the connectivity properties of the client [Spec. page 8 lines 23-24; Fig. 2, element 214], selecting one of the stream servers on the list [Fig. 2, element 232; Spec. page 9, lines 17-19], determining if the selected stream server can handle the media format of a first media file [Fig. 3 elements 335, 340], if the selected stream server can not handle the first media format, converting the first media file to a second media file having a second media format [Fig. 3 elements 345], determining if the selected stream server can handle the second media format [Fig. 3 elements 335, Spec. page 11, lines 21-25], if the selected

stream server can handle the second media format selecting the second media file [Fig. 3 element 360, Spec. page 11, lines 17-19; Spec. page 12, lines 7-8], if the selected stream server can not handle the second media format then selecting a third media file having a third media format [Fig. 3 element 340; Spec. page 11, lines 21-25], determining if the quality of the selected media file is too high for the connectivity properties of the client [Fig. 3, element 350, Spec. page 12, lines 1-5], if the quality of the selected media file is too high transcoding the selected media file [Fig. 3, element 355; Spec. page 12, lines 3-5], generating a meta file for the selected stream server [Spec. page 12, line 6], and initiating streaming from the selected stream server [Spec. page 4, line 7].

In accordance with claim 14 a device for enhancing streaming operation in a distributed communication system is claimed. The device provides communication links between a plurality of stream servers, a client machine requesting a particular media file, and a stream server selection unit. The device is configured to perform a method according to claim 1 [for a summary of the elements of claim 14 please see summary of claim 1 above].

In accordance with claim 15 a computer program product is claimed. The computer program product is stored on a computer usable medium, comprising computer readable program means for causing a computer to perform a method according to claim 1 [for a summary of the elements of claim 15 please see summary of claim 1 above].

Applicant believes the above satisfies the requirements of 37 C.F.R. §41.37(c) (v).

6. Grounds of Rejection to be Reviewed on Appeal

Claims 1, 3-5, 11, and 14-15 were finally rejected under §35 U.S.C. 103(a) as being unpatentable over Rothman et al (Pub. No.: US 2001/0044851 A1), hereinafter “Rothman” in view of Murto et al. (Pub. No.: US 2004/0213409 A1), hereinafter “Murto”.

Claims 7, 9, and 12-13 were finally rejected under §35 U.S.C. 103(a) as being unpatentable over Rothman and Murto in further view of Kenner et al (Patent No.: US 6112239), hereinafter “Kenner”.

The only issue in this appeal is whether claim 1 is *prima facie* obvious over Rothman and Murto.

Applicant believes the above satisfies the requirements of 37 C.F.R. §41.37(c) (vi).

7. Argument

Appellants content that the Examiner failed to establish adequate grounds of rejection for the following reasons:

- I. The Examiner improperly determined the scope and content of Rothman, and failed to ascertain the differences between claim 1 and Rothman in forming the §103(a) rejection. [page 6]
 - a. Rothman does not disclose key limitations, required in the “evaluating the list of stream servers by retrieving and considering the stream server's operating parameters” element. [page 6]
 - b. Rothman does not disclose key limitations, required in the “retrieving and considering the format(s) in which the media file is presented” element. [page 8]
 - c. Rothman does not disclose key limitations, required in the “retrieving and considering preferences from the client” element. [page 9]
 - d. Rothman does not disclose key limitations, required in the “retrieving and considering the connectivity properties of the client” element. [page 10]
 - e. Rothman does not disclose key limitations, required in the “determining if the selected stream server can handle the media format of a first media file” element. [page 11]
 - f. Rothman does not disclose key limitations, required in the “converting the first media file to a second media file having a second media format” element. [page 12]
 - g. Rothman does not disclose key limitations, required in the “transcoding the selected media file” claim element. [page 13]

I. The Examiner improperly determined the scope and content of Rothman, and failed to ascertain the differences between claim 1 and Rothman in forming the §103(a) rejection.

Obviousness is a question of law based on underlying factual inquiries.

Determining the scope and content of the prior art, and ascertaining the differences between the claimed invention and the prior art are two such inquiries. *Graham Factors*. To support the conclusion that the claimed invention is directed to obvious subject matter, either the references must expressly or impliedly suggest the claimed invention or the examiner must present a convincing line of reasoning as to why the artisan would have found the claimed invention to have been obvious in light of the teachings of the references. *Ex parte Clapp*, 227 USPQ 972, 973 (Bd. Pat. App. & Inter. 1985).

The Appellants submit that the Examiner failed to properly determine the scope and content of Rothman. Therefore the Examiner could not possibly ascertain the differences in claim 1 and the teachings of Rothman, nor could the conclusion of obviousness be supported expressly or implicitly by Rothman. Because the Examiner failed to properly determine the scope and content of Rothman, the examiner did not present a convincing reason for a conclusion of obviousness. Specifically the Examiner failed to properly determine the scope and content of Rothman, because:

- a. **Rothman does not disclose key limitations, required in the “evaluating the list of stream servers by retrieving and considering the stream server's operating parameters” element.**

The claim elements, directly above, describe various factors of how a stream server is evaluated before a client and stream server connection is made, and before streaming of a media file is commenced.

In the final office action, the Examiner argues that the Rothman abstract teaches “retrieving and considering the stream server’s operating parameters” by applying “where live, simulated live or looping programming, relayed streams and on demand media delivery function”. Nothing in this passage has anything to do with considering the operating parameters of a stream server when evaluating which stream server to select for future streaming of a media file.

However, Rothman teaches, “a controller server for applying an admission control policy to client requests and assigning stream servers to service the client requests.” [0027, line 5-8]. Critically though, Rothman is silent as to the factors used in the “admission control policy.” As Rothman simply states that an admission control policy exists, any interpretation of what factors the control policy utilizes would be beyond the scope of teachings of Rothman. The claim elements, “retrieving and considering the stream server’s operating parameters, retrieving and considering the format(s) in which the media file is presented, retrieving and considering preferences from the client, retrieving and considering the connectivity properties of the client” are directed to evaluating the list of stream servers. Because Rothman does not at all consider this evaluation, it can not teach the evaluation claim elements in the correct context. Sure, Rothman may mention, “operating parameters/modes”, but Rothman does not use operating modes for evaluating the list of stream servers in any way similar to the way contemplated by the Appellants in claim 1.

In this manner, Rothman teaches that a stream server may operate in four modes: basic/looping mode, live broadcasting mode, relay mode, on-demand mode. [Rothman 0017-0021]. However nowhere does Rothman suggest that an evaluation of these operating parameters occurs to aid in the selection of a stream server. In fact Rothman teaches away from “evaluating the list of stream servers by retrieving and considering the stream server’s operating parameters”. Rothman assumes that all stream servers have identical operating parameters, since Rothman teaches that a stream server (generically) operates in different modes (i.e., all stream servers have the capability to operate in the same four operating modes). [Rothman 0017]. In other words, Rothman does not

consider utilizing stream servers each having the capability of operating in a completely different mode from the other stream server. Because each stream server contemplated in Rothman is identical to each other (each may operate in the four similar operating modes), evaluating the possible operating parameters of a potential stream server would not be necessary.

Because Rothman does not expressly or implicitly teach, and in fact teaches away from, “evaluating the list of stream servers by retrieving and considering the stream server's operating parameters”, the conclusion of obviousness can not be supported.

b. Rothman does not disclose key limitations, required in the “retrieving and considering the format(s) in which the media file is presented” element.

The claim elements, directly above, describe various factors of how a stream server is evaluated before a client and stream server connection is made, and before streaming of a media file is commenced.

In the final office action, the Examiner argues that the Rothman abstract teaches “retrieving and considering the format(s) in which the media file is presented” by asserting the following passage: “where utilizing just-in-time play-list simulation, dynamic allocation of servers to listeners”. The Examiner further sets forth that this passage describes the property that a request will be fulfilled according to specific preference as asked by client.

The interpretation by the Examiner that “retrieving and considering the format(s) in which the media file is presented” has no clear link whatsoever with a “property that a request will be fulfilled according to specific preference as asked by client.” The current application is considering the media file format (i.e., .mp3, .wav, etc.) available in a stream server before that stream server is selected and streaming is commenced. The consideration of media file format in the selection of a stream server is simply not contemplated by fulfilling a request according to specific preferences as asked by the

client, as the Examiner suggests. Nowhere does Rothman suggest that an evaluation the format(s) in which the media file is presented occurs to aid in the selection of a stream server.

In fact Rothman teaches away from the evaluation of stream servers based on media formats to be presented from the stream server. Rothman only considers the situation where all the stream servers have “appropriate format” media files. Rothman teaches, “[t]he streaming data may include at least one of audio data, video data, multimedia data, text data, and/or any combination thereof in an appropriate format to be received and accessed by a user at the client.” Rothman 0060, lines 12-16. Since all stream servers have “appropriate format” media files, then an evaluation of stream servers based upon media file formats is not necessary. Therefore, Rothman does not need to retrieve and consider the media file formats in the evaluation of each stream server, before a stream server is selected prior to streaming.

Because Rothman does not expressly or implicitly teach, and in fact teaches away from, “evaluating the list of stream servers by... retrieving and considering the format(s) in which the media file is presented”, the conclusion of obviousness can not be supported.

c. Rothman does not disclose key limitations, required in the “retrieving and considering preferences from the client” element.

The claim elements, directly above, describe various factors of how a stream server is evaluated before a client and stream server connection is made, and before streaming of a media file is commenced.

In the final office action, the Examiner argues that the Rothman Abstract teaches evaluating stream servers (to determine which stream server is utilized in streaming) by “retrieving and considering preferences from the client” by interpreting “delivering stream media by allocating specific server to specific client / listeners dynamically” as configuring preferences as per client requirements. In this manner, the Examiner improperly equates evaluating stream servers by retrieving and considering client

preferences (to aid in the selection of a stream server) to configuring preferences as per client requirements.

Since the Examiner cited sentence is not actually in the Rothman Abstract, the Appellants assume that the following passage in the Rothman Abstract is what was meant to be written: “[t]he streaming server utilizes...dynamic allocation of servers to listeners”.

The interpretation by the Examiner that “retrieving and considering preferences from the client” has no clear link whatsoever with a “configuring preferences as per client requirements.” The current application is considering client preferences when evaluating a list of stream server to select a stream server in order to commence streaming. The consideration of retrieving and considering client preferences (to aid in the selection of a stream server) is simply not contemplated by the general idea of dynamically allocating of stream servers, as the Examiner suggests. Nowhere does Rothman suggest that an evaluation of client preferences occurs to aid in the selection of a stream server.

Because Rothman does not expressly or implicitly teach, “evaluating the list of stream servers by... retrieving and considering preferences from the client”, the conclusion of obviousness can not be supported.

d. Rothman does not disclose key limitations, required in the “retrieving and considering the connectivity properties of the client” element.

The claim elements, directly above, describe various factors of how a stream server is evaluated before a client and stream server connection is made, and before streaming of a media file is commenced.

In the final office action, the Examiner argues that the Rothman Abstract teaches evaluating stream servers (to determine which stream server is to be utilized in streaming) by “retrieving and considering the connectivity properties of the client” by interpreting “no load and low load control” as connectivity considerations.

Rothman teaches a low load and a zero load method for efficient streaming. Rothman 0044 and 0045. However the low load and zero load methods for efficient

streaming have nothing to do with evaluating stream servers (to aid in the determination as to which stream server to select) by considering the connectivity properties between a client and each stream server. The low load and zero load methods involve the idea of allowing stream servers to not retrieve data from the storage system if the stream server has no client connections, Rothman [0043]. As stated above evaluation of a list of stream servers, by retrieving and considering the connectivity properties of the client, simply does not take place in Rothman.

Because Rothman does not expressly or implicitly teach, “evaluating the list of stream servers by... retrieving and considering the connectivity properties of the client”, the conclusion of obviousness can not be supported.

e. Rothman does not disclose key limitations, required in the “determining if the selected stream server can handle the media format of a first media file” element.

The claim elements, directly above, describe that the selected stream server is evaluated to determine if the stream server can in fact stream a media file of a particular format.

In the final office action the Examiner argues that the Rothman Abstract teaches “determining if the selected stream server can handle the media format of a first media file” by citing paragraph 0016 in Rothman. The Examiner states that generating a player window is an instance of the user’s preferred web browser, and is equivalent to “determining if the selected stream server can handle the media format of a first media file.” This assertion by the Examiner is simply not accurate.

The aim for this particular claim element, is to determine if the selected stream server can handle a media file format (i.e., .mp3, .wav, etc.) before streaming is commenced. The consideration of whether a stream server can handle a type of media file format is simply not contemplated by “generating a player window”, as the Examiner

suggests. Nowhere does Rothman suggest that an evaluation the format(s) in which the media file is presented occurs to aid in the selection of a stream server.

In fact Rothman teaches away from determining if the selected stream server can handle the media format of a first media file. Rothman only considers the situation where all the stream servers have “appropriate format” media files. Rothman teaches, “[t]he streaming data may include at least one of audio data, video data, multimedia data, text data, and/or any combination thereof in an appropriate format to be received and accessed by a user at the client.” Rothman 0060, lines 12-16. Since all stream servers have “appropriate format” media files, then determination whether a stream server can handle a first media file format is not necessary.

Because Rothman does not expressly or implicitly teach, and in fact teaches away from, “determining if the selected stream server can handle the media format of a first media file”, the conclusion of obviousness can not be supported.

f. Rothman does not disclose key limitations, required in the “converting the first media file to a second media file having a second media format” element.

The claim elements, directly above, describe that the media file format is converted to another format if the selected stream server can not handle or stream the first media file format.

In the final office action the Examiner argues that the Rothman teaches “converting the first media file to a second media file having a second media format” by citing paragraph 0060. The Examiner states that because Rothman teaches an “appropriate format to be received and accessed...at the client” implicitly describes that the server carry the functionality to use/change format according to specific requirements. This assertion of inherency is not supported factually or technically and is clearly improper.

To establish inherency, the extrinsic evidence must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill. Inherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient. *In re Robertson*, 169 F.3d 743, 745, 49 USPQ2d 1949, 1950-51 (Fed. Cir. 1999). In relying upon the theory of inherency, the examiner must provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the applied prior art. *Ex parte Levy*, 17 USPQ2d 1461, 1464 (Bd. Pat. App. & Inter. 1990).

The Examiners assertion of inherency is clearly based on probabilities or possibilities, and not because “converting the first media file to a second media file having a second media format” is necessary in Rothman. Rothman teaches that the media file format must be “appropriate” to stream. The possibility of having an inappropriate media file format is, simply and clearly, outside the scope of Rothman. It is certainly possible and highly probable that if Rothman was confronted with an inappropriate media file format, streaming would not occur. In other words it is not technically or factually necessary for Rothman to convert the media file format to an appropriate format. Therefore the Examiner’s assertion of inherency is clearly in error. Consequently Rothman does not teach converting the first media file to a second media file having a second media format.

Because Rothman does not expressly or implicitly teach, “converting the first media file to a second media file having a second media format”, the conclusion of obviousness can not be supported.

g. Rothman does not disclose key limitations, required in the “transcoding the selected media file” claim element.

In the final office action the Examiner argues that the Rothman teaches “transcoding the selected media file” by citing paragraph 0061 in Rothman. The Examiner states that Rothman teaches “transcoding”, stating that in Rothman a “media file server 12 is a higher capacity and high availability network-attached data server configuration which provides the ability for multiple file systems to exist concurrently over multiple communication stacks with shared data access”.

Claim 1 requires transcoding (i.e., reducing the frame-rate or down-sampling the audio with standard algorithms. Spec. page 12, lines 3-5) the media file if the quality of the media file is too high for the connectivity properties of the client.

Rothman teaches that each stream server has multiple physical file systems to co-exist, each optimized to the needs of a particular data service. [Rothman 0061, lines 11-13]. Consequently Rothman, is unlikely to utilize “transcoding” for connectivity issues, and is likely to utilize stream servers having multiple similar media files, each having a different quality, where the proper quality of media file may be selected to stream, depending on the connectivity properties of the client. In other words, because Rothman states that multiple files may exist on a stream server, there would be no need to transcode/degrade the quality of a particular file to due to connectivity issues. In this manner, Rothman teaches away from “transcoding” as contemplated by the Appellants.

Because Rothman does not expressly or implicitly teach, and in fact teaches away from, “transcoding the selected media file”, the conclusion of obviousness can not be supported.

Summary

Appellant discloses and claims a novel and unobvious method for enhancing streaming operation in a distributed communication system providing communication links between a plurality of stream servers, a client machine requesting a particular media file, and a stream server selection unit. Rothman, the primary reference, describes techniques for efficient streaming. For the reasons explained herein, Rothman fails to teach, and in fact teaches away from, the express limitations of claim 1.

Applicant believes the above satisfies the requirements of 37 C.F.R. §41.37(c) (vii).

Date: October 3, 2008

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8. Claims Appendix

1. (Previously Presented) A method for enhancing streaming operation in a distributed communication system providing communication links between a plurality of stream servers, a client machine requesting a particular media file, and a stream server selection unit, comprising the steps of:

retrieving a list of stream servers from an Universal Description, Discovery, and Integration (UDDI) directory service,

evaluating the list of stream servers by retrieving and considering the stream server's operating parameters, retrieving and considering the format(s) in which the media file is presented, retrieving and considering preferences from the client, retrieving and considering the connectivity properties of the client,

selecting one of the stream servers on the list,

determining if the selected stream server can handle the media format of a first media file, if the selected stream server can not handle the first media format, converting the first media file to a second media file having a second media format,

determining if the selected stream server can handle the second media format, if the selected stream server can handle the second media format selecting the second media file, if the selected stream server can not handle the second media format then selecting a third media file having a third media format,

determining if the quality of the selected media file is too high for the connectivity properties of the client, if the quality of the selected media file is too high transcoding the selected media file,

generating a meta file for the selected stream server, and

initiating streaming from the selected stream server.

2. (Canceled)

3. (Previously Presented) The method according to claim 1, wherein the step of

retrieving and considering the stream server's operating parameters further comprises the step of determining operating parameters of each stream server on the list of stream servers, wherein the operating parameters are formed by information about the supported media formats of the stream servers.

4. (Original) The method according to claim 1, wherein the step of evaluating the list of stream servers further includes the step of retrieving and considering the player availability.

5. (Previously Presented) The method according to claim 1, wherein the step of retrieving and considering preferences from the client further comprises the steps of retrieving and considering a list of all available media players at the client, and retrieving and considering a preferred media player.

6. (Canceled)

7. (Original) The method according to claim 1, wherein the step of evaluating the list of stream servers further includes the step of weighting one or more of the considered parameters.

8. (Canceled)

9. (Original) The method according to claim 1, further comprising the step of determining whether or not the format of the media has changed.

10. (Canceled)

11. (Previously Presented) A method for enhancing streaming operation in a distributed communication system providing communication links between a plurality of

stream servers, a client machine requesting a particular media file, and a stream server selection unit, comprising the steps of:

retrieving a list of stream servers from an Universal Description, Discovery, and Integration (UDDI) directory service,

evaluating the list of stream servers,

selecting a stream server on the list,

detecting the data transfer rate between the client machine and the distributed communication system,

requesting the streaming of a media file in a first media file format,

intercepting the request for streaming the media file if the stream server can not handle the first media file format,

requesting the streaming of the media file in a second media file format, and

sending the streaming request of the media file in a second media file format to the stream server selection unit.

12. (Original) The method according to claim 11, further comprising the initial step of detecting the capabilities of the client machine.

13. (Original) The method according to claim 11, further comprising the step of retrieving preferences predetermined by the user of the client machine.

14. (Original) A device for enhancing streaming operation in a distributed communication system providing communication links between a plurality of stream servers, a client machine requesting a particular media file, and a stream server selection unit, the device being configured to perform a method according to claim 1.

15. (Original) A computer program product stored on a computer usable medium, comprising computer readable program means for causing a computer to perform a method according to claim 1.

9. Evidence Appendix

No evidence is submitted.

10. Related Proceedings Appendix

There are no related proceedings.